

# EXHIBIT 20

# **McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS**

**Sixth  
Edition**

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**On the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meteorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)**

Over the six editions of the Dictionary, material has been drawn from the following references: G. M. Garrity et al., *Taxonomic Outline of the Prokaryotes*, Release 2, Springer-Verlag, January 2002; D. W. Linzey, *Vertebrate Biology*, McGraw-Hill, 2001; J. A. Pechenik, *Biology of the Invertebrates*, 4th ed., McGraw-Hill, 2000; U.S. Air Force *Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, Department of Defense, 1967; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, National Aeronautics and Space Administration, 1965; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *ADP Glossary*, Department of the Navy, NAVSO P-3097; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission.

#### **McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS, Sixth Edition**

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diverse, bilaterally symmetrical animals, including mollusks, ostracod crustaceans, and brachiopods, having a soft body enclosed in a calcareous two-part shell. { 'bī, valv }

**Bivalvia** [INV ZOO] A large class of the phylum Mollusca containing the clams, oysters, and other bivalves. { bī'val-vē-ə }

**bivane** [ENG] A double-jointed vane which measures vertical as well as horizontal wind direction. { 'bī, vān }

**bivariate distribution** [STAT] The joint distribution of a pair of variates for continuous or discontinuous data. { bī'ver-ē-ət, dis-trə'byū-shən }

**biventer** [ANAT] A muscle having two bellies. { bī'ven-tor }

**bivittate** [ZOO] Having a pair of longitudinal stripes. { bī'vī,tāt }

**bivium** [INV ZOO] The pair of starfish rays that extend on either side of the madreporite. { 'bī-vē-əm }

**bivoltine** [INV ZOO] 1. Having two broods in a season, used especially of silkworms. 2. Of insects, producing two generations a year. { bī'vōl,tēn }

**bivouac** [ORD] An encampment set up for a short period of time by using tents. { 'biv-ə,wak }

**bixbyite** [MINERAL] (Mn,Fe)<sub>2</sub>O<sub>3</sub> A manganese-iron oxide mineral; black cubic crystals found in cavities in rhyolite. Also known as partridgeite; sitaparite. { 'biks-bē,īt }

**bixin** [ORG CHEM] C<sub>25</sub>H<sub>36</sub>O<sub>4</sub> A carotenoid acid occurring in the seeds of *Bixa orellana*; used as a fat and food coloring agent. { 'bik-sən }

**bize** See bise. { bēz }

**BJT** See bipolar junction transistor.

**Bk** See berkelium.

**BL** See base line.

**Blaauw mechanism** [ASTRON] An explanation for the disruption of a binary system as being due to the decrease in the gravitational binding force when a shell of gas ejected by the primary component overtakes the secondary. { 'blō,mek-ə,nīz-əm }

**black** [CHEM] Fine particles of impure carbon that are made by the incomplete burning of carbon compounds, such as natural gas, naphthas, acetylene, bones, ivory, and vegetables. [COMMUN] See black signal. [OPTICS] Quality of an object which uniformly absorbs large percentages of light of all visible wavelengths. { blak }

**black acids** [MATER] Sulfonates in the sludge formed during treatment of petroleum products with sulfuric acid; soluble in water but insoluble in naphtha, benzene, and carbon tetrachloride. { 'blak 'as-ədz }

**black alkali** [GEOL] A deposit of sodium carbonate that has formed on or near the surface in arid to semiarid areas. { 'blak 'al-kə,ī }

**black amber** See jet coal. { 'blak 'am-bər }

**black-and-white groups** See Shubnikov groups. { 'blak ən 'wīt 'grups }

**black-and-white television** See monochrome television. { 'blak ən 'wīt 'tel-ə,vīzh-ən }

**black annealing** [MET] A type of box annealing used to impart a black color to the metal surface; first process in tin plating. { 'blak ə'nēl-īŋ }

**black ash** [MATER] A carbon product made by furnace heating of black liquor from papermaking processes. { 'blak 'ash }

**black balsam** See Peru balsam. { 'blak 'bōl-səm }

**blackband** [GEOL] An earthy carbonate of iron that is present with coal beds. { 'blak,bənd }

**black band disease** [INV ZOO] A coral reef disease that is characterized by a thick black band of tissue that advances rapidly across infected corals, leaving empty coral skeletons behind. { 'blak,bənd di,zēz }

**blackberry** [BOT] Any of the upright or trailing shrubs of the genus *Rubus* in the order Rosales; an edible berry is produced by the plant. { 'blak,ber-ē }

**blackbird** [VERT ZOO] Any bird species in the family Icteridae, of which the males are predominantly or totally black. { 'blak,bərd }

**black blight** [PL PATH] Any of several diseases of tropical plants caused by superficial sooty molds. { 'blak,bliht }

**blackboard** [MATER] A panel, usually black but sometimes colored, for writing on with chalk. Also known as chalkboard. { 'blak,bōrd }

**blackbody** [THERMO] An ideal body which would absorb all

incident radiation and reflect none. Also known as hohlraum; ideal radiator. { 'blak,bād-ē }

**blackbody radiation** [THERMO] The emission of radiant energy which would take place from a blackbody at a fixed temperature; it takes place at a rate expressed by the Stefan-Boltzmann law, with a spectral energy distribution described by Planck's equation. { 'blak,bād-ē ,rā-dē'ā-shən }

**blackbody temperature** [THERMO] The temperature of a blackbody that emits the same amount of heat radiation per unit area as a given object; measured by a total radiation pyrometer. Also known as brightness temperature. { 'blak,bād-ē ,tem-prə-chor }

**black box** [ENG] Any component, usually electronic and having known input and output, that can be readily inserted into or removed from a specific place in a larger system without knowledge of the component's detailed internal structure. { 'blak ,bāks }

**black-bulb thermometer** [ENG] A thermometer whose sensitive element has been made to approximate a blackbody by covering it with lampblack. { 'blak ,bəlb thər'mām-əd-ər }

**black buran** See karaburan. { 'blak bū'rān }

**black canker** See ink disease. { 'blak 'kaŋ-kər }

**black carbon counter** [NUCLEO] The original type of radiation counter used in radiocarbon dating, in which the sample, whose carbon has first been converted to carbon black, is mounted on the inside of a steel cylinder which is inserted into a sensitive Geiger counter. Also known as Libby counter. { 'blak 'kār-bən ,kaunt-ər }

**black chaff** [PL PATH] A bacterial disease of wheat caused by *Xanthomonas translucens undulosa* and characterized by dark, longitudinal stripes on the chaff. { 'blak 'chaf }

**black coal** See natural coke. { 'blak 'kōl }

**black cobalt** See asbolite. { 'blak 'kō-bōlt }

**black copper** [MET] The more or less impure metallic copper (70–99% copper) produced in blast furnaces when running on oxide ores or roasted sulfide material. { 'blak 'káp-ər }

**black coral** [INV ZOO] The common name for antipatharian cnidarians having black, horny axial skeletons. { 'blak 'kār-əl }

**black cotton soil** See regur. { 'blak 'kat-ən 'sōil }

**black cyanide** See calcium cyanide. { 'blak 'st-ə,nīd }

**blackdamp** [MIN ENG] A nonexplosive mixture of carbon dioxide with other gases, especially with 85–90% nitrogen, which is heavier than air and cannot support flame or life. Also known as chokedamp. { 'blak,dəmp }

**black death** See plague. { 'blak 'deth }

**black diamond** See carbonado. { 'blak 'dī-mənd }

**black disease** [VET MED] Necrotic hepatitis of sheep, resulting from infection with *Clostridium novyi* type B, with the necessary conditions for the growth of the clostridia provided by the damaged liver tissue produced by the fluke *Fasciola hepatica*. { 'blak di'zēz }

**black drop** [ASTRON] As seen through a telescope, an apparent dark elongation of the image of Venus or Mercury when the planets' images are at the sun's limb. { 'blak 'drāp }

**black durain** [GEOL] A durain that has high hydrogen content and volatile matter, many microspores, and some vitrain fragments. { 'blak 'dū,rān }

**black dwarf** See brown dwarf. { 'blak 'dwōrf }

**black end** [PL PATH] 1. A disease of the pear marked by blackening of the epidermis and flesh in the region of the calyx; believed to be a result of a disturbed water relation. 2. A fungus disease of the banana caused by several species, especially *Gloeosporium musarum*, characterized by discoloration of the stem of the fruit. { 'blak ,end }

**blackier-than-black level** [COMMUN] In television, a level of greater instantaneous amplitude than the black level, used for synchronization and control signals. { 'blak-ər thən 'blak ,lev-əl }

**blackeye bean** See cowpea. { 'blak,ī'bēn }

**blackfire** [PL PATH] A bacterial disease of tobacco caused by *Pseudomonas angulata* and characterized by angular leaf spots which gradually darken and may fall out, leaving ragged holes. { 'blak,fīr }

**black frost** [HYD] A dry freeze with respect to its effects upon vegetation, that is, the internal freezing of vegetation unaccompanied by the protective formation of hoarfrost. Also known as hard frost. { 'blak 'frōst }

**black granite** See diorite. { 'blak 'gran-ət }

## BLACKBERRY



Thorny, biennial stem of blackberry shrub.